

Dental Digest

Sixth Year of Publication

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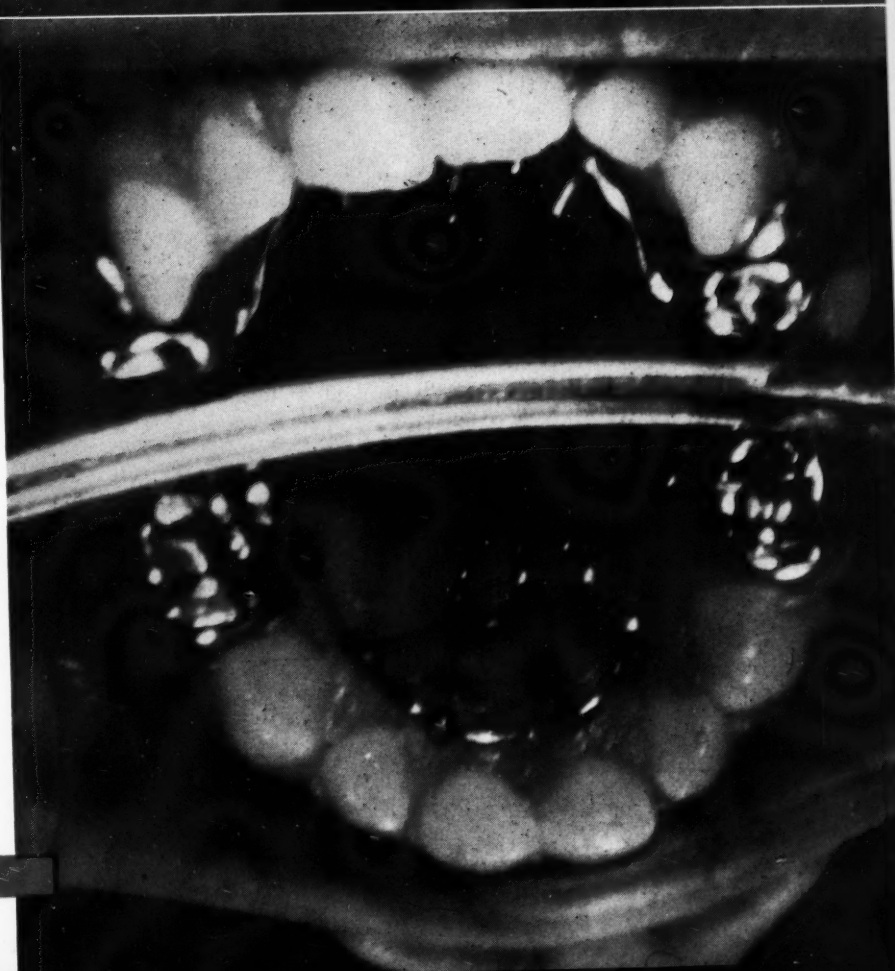
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About Our CONTRIBUTORS

SYDNEY S. WAGMAN, D.D.S. (Temple University, School of Dentistry, 1945) is a general practitioner and the author of a book on the use of hypnosis in dentistry, published in 1957. Doctor Wagman was for five years a member of the periodontal staff of the Albert Einstein Medical Center. For his first appearance in *DIGEST* he presents a unique article, *THE HETEROIMPLANTATION OF NATURAL TEETH*.

GALEN W. QUINN, D.D.S. (Creighton University, 1952), M.S. Orthodontics (University of Texas, 1955) who specializes in orthodontics will be remembered for his previous *DIGEST* article which described a simplified method for injection technique. This month he presents *HOLLOW "COLD CURE" ACRYLIC MODELS*.

CHARLES B. CALDWELL, B.S. (University of Arkansas, 1938), D.D.S. (University of California, College of Dentistry, 1958) is engaged in the practice of general dentistry and publishes for the first time in *DIGEST* presenting in the current issue an illustrated article, *SIMPLIFIED TECHNIQUE FOR TOPICAL FLUORIDATION*.

LEO STOLL, D.D.S. (New York University College of Dentistry, 1931) has devoted thirty-two years to research in the field of occlusion and articulation and has contributed many valuable observations to this aspect of dentistry. In this issue Doctor Stoll presents the seventh in the series of articles which have appeared under the general title, *CLINICAL APPLICATIONS OF OCCLUSION AND ARTICULATION*.

DUANE ARTHUR SCHMIDT, D.D.S. (State University of Iowa, College of Dentistry, 1957) Honor Graduate, Pedodontia (State University of Iowa, College of Dentistry, 1957) is a pedodontist. Doctor Schmidt, who is an instructor in the Department of Pedodontia, State University of Iowa, College of Dentistry, publishes in *DIGEST* for the first time this month. His article is *AN EVALUATION OF A PERNICIOUS DENTAL HABIT*.

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708 Church Street, Evanston, Illinois

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The HETEROIMPLANTATION of Natural Teeth*

SYDNEY S. WAGMAN, D.D.S., Philadelphia

DIGEST

This article reviews the results of several situations where a donor-recipient implantation technique was performed. Three case histories are presented in which the author outlines the step-by-step procedures adopted.

Body tissues (blood, skin, cornea, bone, cartilage) may be kept viable in tissue-banks for transfer from donor to recipient. It should be possible to develop methods for the biologic preservation of teeth to allow them to be transferable from one human being to another.

Review of Subject Inconclusive

A review of cases of implantation and transplantation of teeth gave a confused and inconclusive picture of the probable results:

1. The work of Apfel¹ ruled out the transplant of a bud, for he reported that a transplant from one person to another always failed. This conclusion

was accepted despite the fact that Shapiro and Maclean² reported successful transplantation of buds in kittens.

2. In a reported case of a replanted tooth observed for a four-year period root canal therapy was completed extraorally³ and the tooth wired to place. Resorption of the root was evident at the end of three months, and at the end of four years the tooth was removed because it was suppurative.

3. One other case was observed for three months⁴ at which time the root showed roentgenographic signs of resorption.

4. One author⁵ reported two cases where the teeth that were replanted were extracted intentionally. In the first case, the extraction was to permit ease of root canal therapy; the second case was performed to permit

the elimination of excess root canal filling. Both cases were reported as successful some years later.

Case One

The patient was a white woman, 34 years old. The pulp in the upper right second bicuspid was putrescent and the crown of the tooth was carious to the degree that all of the anatomic crown fractured when an attempt was made to open the tooth for access to the pulp chamber.

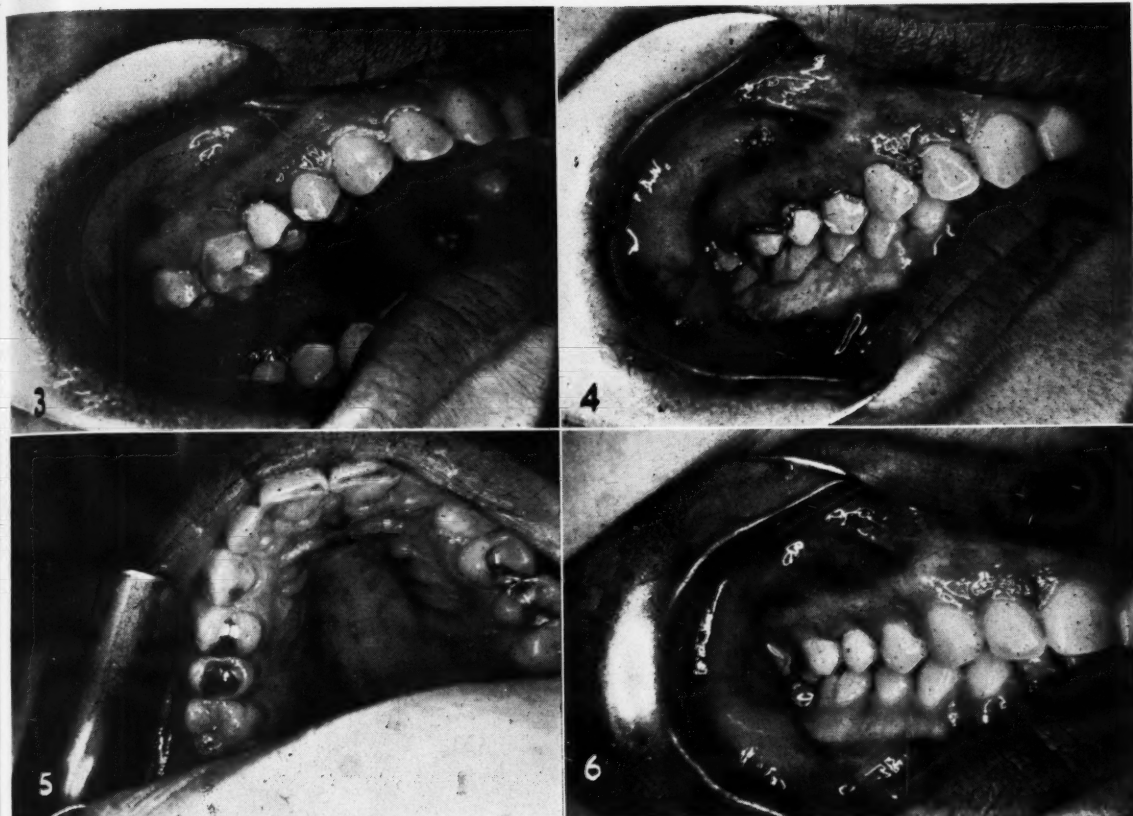
Treatment—It was decided to remove the tooth rather than jeopardize the periodontal status of the first bicuspid and first molar by surgically creating a clinical crown by dropping the gingival attachment. It was decided to attempt the implant of a bicuspid extracted for orthodontic reasons.

Preparatory Steps—1. The extract-

1. Occlusal view of fractured root.
2. Buccal view of fractured root.



*From the Albert Einstein Medical Center.
¹Apfel, H.: Preliminary Work in Transplant of Third Molar to First Molar Position, *JADA* 48:143-150 (Feb.) 1956.
²Shapiro, H. H., and Maclean, B. L.: Transplant of Developmental Tooth Germs in Mandible of Cat; Roentgen Study, *JADA* 33:539 (April) 1946.
³Katz, T.: Study of Replanted Upper Lateral Incisor, *JADA* 35:143-145 (July) 1957.
⁴Falveiello, J. J.: Reimplantation of an Upper Left Central Incisor; Report of a Case, *JADA* 44:438-439 (April) 1952.
⁵Wild, H.: Replantation of Teeth, *JADA* 52:51 (Jan.) 1956.



3.
Implant fitted to alveolus.

4.
Retention wire in position.

5.
Implant after removal of splint, occlusal view.

6.
Six months after implantation.

ed first bicuspid of a girl, age 12, (the donor) was washed and stored in normal saline.

2. The pulp was removed and the canals filled.

3. The root of the recipient's upper second bicuspid was anesthetized with infiltrative anesthesia and extracted.

4. The socket was enlarged to accommodate the larger roots of the first bicuspid, and the roots of the first bicuspid were shortened to fit the socket loosely.

5. The crown of the first bicuspid had to be reduced for it was quite large; the reduction of the crown mesiodistally was done so that a firm contact was effected to the approximating teeth.

Implantation Technique—1. The

7.
Preoperative x-ray view.

8.
One month postoperative.

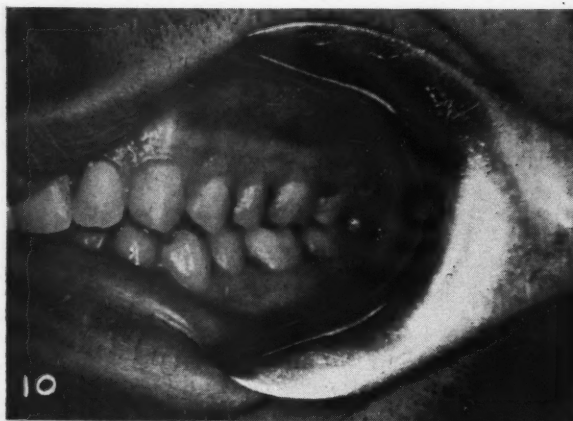
9.
Eighteen months postoperative.

tooth to be implanted was placed in the socket. The mesial and distal contacts prevented movement in those directions (Fig. 3).

2. The tooth and the adjoining teeth were covered with dry foil.

3. A doubled strand of .010 wire was run in a loose loop from the mesial of the patient's upper right first bicuspid to the distal of the upper right first molar (Fig. 4). This wire was incorporated within the body of quick cure acrylic that was





10.
Preoperative buccal view.

11.
Preoperative occlusal view.

12.
Plastic splint over dry foil incorporating wire.

13.
Occlusal view, postoperative.

14.
Three months after implantation. Probe examination.

15.
Six months postoperative view.

applied to act as a splint preventing the buccal and lingual movement of the tooth.

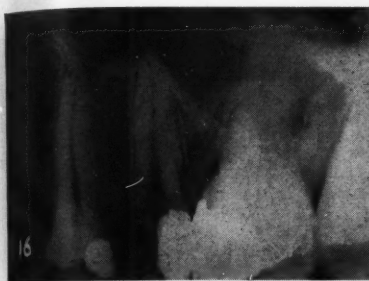
4. The occlusion was carefully relieved so that the implant was out of occlusion.

5. After four weeks the acrylic and wire were removed (Fig. 5). The

tooth mobility was one millimeter; at the end of two additional weeks the mobility was insufficient to be recorded (Fig. 6). Careful probing of the attachment revealed a normal gingival sulcus. X-ray examination (Figs. 7, 8, and 9) has revealed normal healing.

Case Two

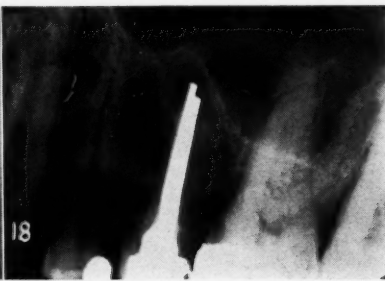
A man, 29 years of age, had fractured the upper left second bicuspid on a chip of bone which resulted in shearing off the entire lingual cusp to a point four millimeters apical to the alveolar crest (Figs. 10 and 11). The pulp was exposed and three



16.
Preoperative view.



17.
Implant.



18.
Implant, 6 months.



19.
Preoperative, 48 hours after accident.



20.
Implant fitted and wired.

weeks after the accident the tooth was no longer vital.

Therapy Proposed—Extraction of the tooth was advised by the dentist

who informed him of the possibility of an implant. He was interested to have the implant attempted, and was referred for the implant technique.

Similar Results Obtained—The same procedure as outlined in Case

(Continued on page 310)

An Invitation to Contributors:

Since 1894 when DENTAL DIGEST was founded the pages of this journal have been open to articles contributed by dentists throughout the world. The emphasis has been, and will continue to be, on the publication of articles on all phases of clinical practice.

DENTAL DIGEST encourages the use of many illustrations to show techniques. We prefer that the text be short and that step-by-step tech-

nical procedures be presented as an illustrated "clinic on paper."

A booklet, *Suggestions to Authors*, has been prepared by the editorial staff and will be sent free on request.

Why publish? Any dentist who has developed a technique, refined a procedure, or has made a significant clinical observation has the opportunity to record these advancements and elevate his profes-

sional standing by making a contribution to the literature.

* * *

For all illustrated articles that appear in DENTAL DIGEST the author will receive an honorarium of \$50 to help defray his expense in preparing the photography or drawings.

Contributors are invited to send their articles to:

Edward J. Ryan, D.D.S.
Editor, DENTAL DIGEST
708 Church Street
Evanston, Illinois

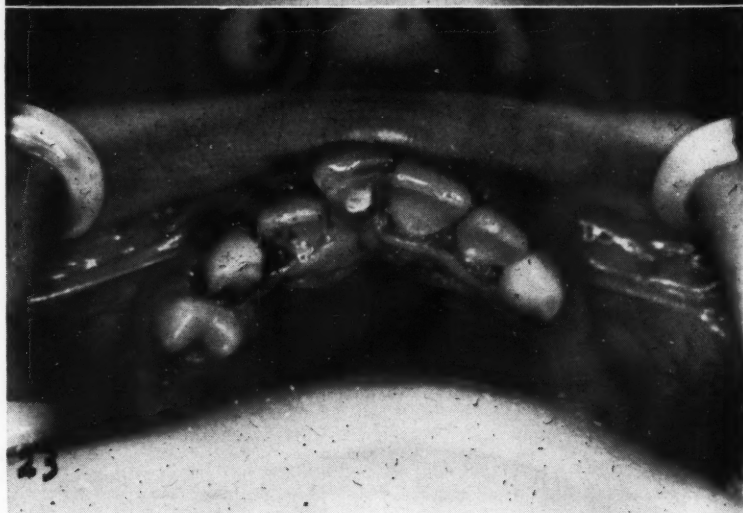
21.
Plastic splint just before removal.



22.
Postoperative view, after 5 weeks.



23.
Postoperative view, palatal aspect.



One was followed (donor-recipient) as shown in Figures 12 to 18. The result was essentially the same as that experienced in Case One.

Case Three

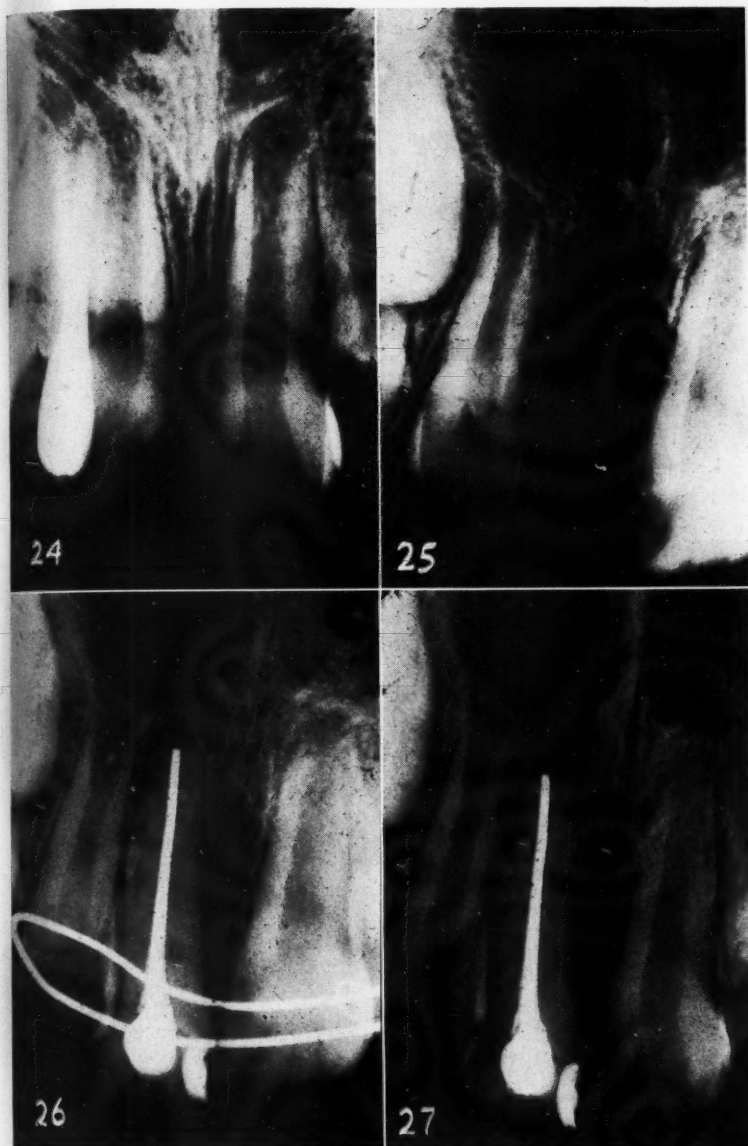
The patient was an active seven-year-old boy. His upper right permanent central incisor had been knocked out *in toto* in a skating accident on Saturday afternoon. The tooth could not be found. He was not seen until the Monday after the accident.

Replacement Obtained — Despite the fact that he was not to be seen until Monday a freshly extracted right central incisor in reasonably good

condition was obtained, washed, the root canal filled, the root planed, and the tooth stored in sterile saline.

Implantation Procedure Decided — On Monday morning the socket had

begun to retract (Fig. 19) and it seemed that some of the labial plate of bone was missing. The problems involved with an artificial replacement which would have to be remov-



24.

Two months before the accident.

25.

Forty-eight hours after the accident.

26.

Implant fitted and wired.

27.

Postoperative view after 6 weeks.

compromised as shown in Figures 20, 21, and 22.

Result Satisfactory—The case is now two months postoperative and the result thus far is excellent both esthetically and clinically (Figs. 23, 24, 25, 26, and 27).

Summary

Three cases of the heteroplastic implant of a tooth are presented. Results to date are encouraging. The technique is not a difficult one.

Sufficient success has been recorded to indicate the value of further investigation.

913 West Lehigh Avenue

able, with the usual problems of tissue irritation, breakage, and the occasional loss of the prosthesis made the decision to attempt an implant preferable.

Reduction of Central Incisor—Some difficulty was encountered when an attempt was made to reduce the crowded labial version of the patient's own central incisor and this had to be

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Hollow "Cold Cure" ACRYLIC MODELS*

GALEN W. QUINN, D.D.S., M.S., Durham, North Carolina

DIGEST

Many uses can be made of models. They can be effective for chairside patient demonstration in the office, teaching aids in dental education, and for table clinics, and demonstrations. Acrylic models are less fragile than plaster models. They are also lighter in weight and are more realistic in color.

A technique for constructing hollow acrylic models is described in this article. In this technique acrylic liquid is applied by the drop method and the acrylic powder is applied by spraying from a plastic container.

Materials Required

The materials shown in Figure 1 are needed:

1. Slow setting alginate impression material.
2. Rubber bowl.
3. Tooth shade and pink, cold-curing acrylic in separate plastic containers.
4. Acrylic liquid in bottle with dropper.
5. Camel's hair brush.
6. Free cotton and cotton pliers.
7. Air syringe.
8. Amalgam condenser and carving instrument.
9. Large file.

1. Materials.

2. Negative Impression.

*From Duke University, Medical Center, Department of Surgery, Division of Orthodontics.

Technique Employed

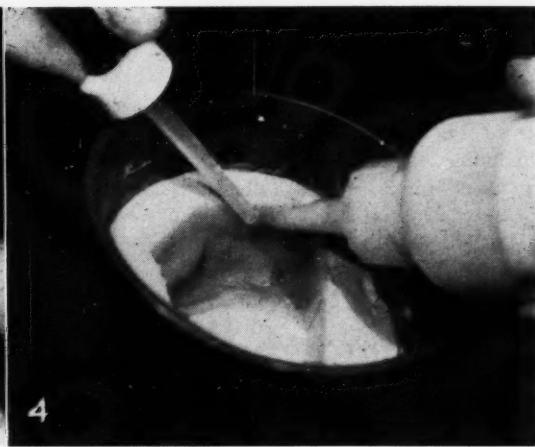
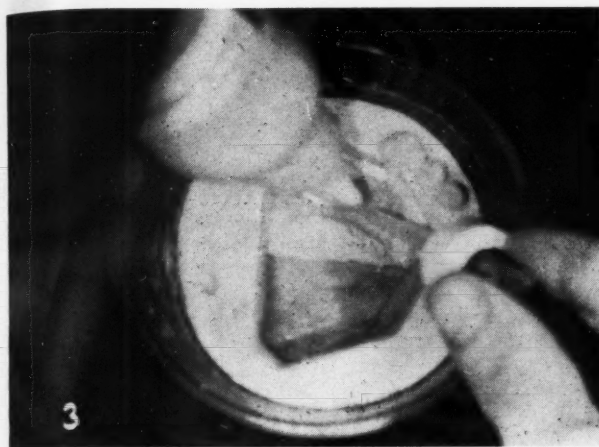
The following steps may be taken:

1. A proposed impression is poured in plaster and trimmed properly.

2. The trimmed impression is placed in water and allowed to soak while a mix of five scoops of alginate is spatulated.

3. The model is removed from the water and immediately covered with alginate using the "wetted" hand to





mold the alginate thereby removing excess water and eliminating air bubbles from the impression.

4. The model is placed teeth downward in the bowl with the remaining alginate. Alginate material must cover all except the top of the art portion of the mold.

5. After the alginate has set the impression is covered with water and the model is removed from the alginate leaving a negative impression (Fig. 2).

6. Free cotton and an air syringe are used to dry the impression in preparation for application of acrylic.

7. Tooth shade acrylic is applied in the impression area of the teeth

3.
Application of tooth shade acrylic.

4.
Application of pink acrylic. (Note thickness).

with the bowl in an upright position. The acrylic is trimmed to the tooth-gingival junction with a brush, a carving instrument, and an amalgam condenser (Fig. 3).

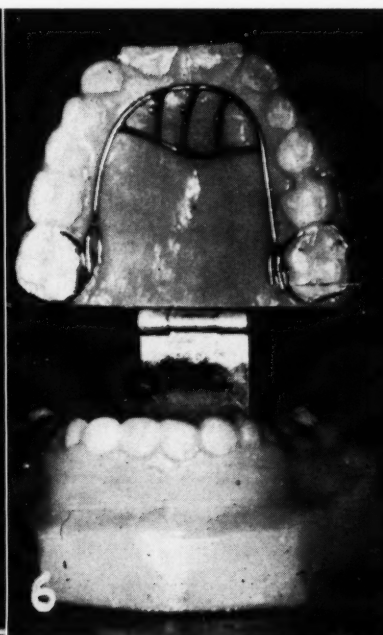
8. As soon as the tooth shade

5.
Acrylic models, hinged, and mounted on plexiglass.

6.
"Crib type" thumbsucking appliance and thumbs.

acrylic is firm, pink acrylic can be applied in a thin layer over the teeth, palate, or tongue area. The bowl is then laid on one side and a thin layer of acrylic is applied on all surfaces. Roll the bowl to obtain easier access to all areas (Fig. 4). When all areas of the impression have been covered with acrylic, the hollow form is allowed to set, preferably under warm water.

9. After the acrylic has set, the hollow acrylic model is removed from the alginate. A large file is used to remove overhanging and excess acrylic. Proper orientation of the art portion of the cast is determined and filed evenly.



Completion of Technique

1. The trimmed acrylic model, without base, is placed with the art portion resting on a glass slab. Acrylic powder is applied around the model to outline the dimensions and to form a "dam" for an adequate thickness of acrylic liquid and powder to enclose the model base.

2. Acrylic liquid and powder are applied to about one millimeter thickness and the model is placed open end over the acrylic on the glass slab. After setting, excess acrylic is trimmed and the models may or may not be polished.

3. Upper and lower models may be occluded and hinged with a simple

hinge. Small brass hasps work very well. Series of these models may be used independently or screwed to plexiglass sheets with descriptive legends inserted or shellacked (Figs. 5 and 6).

Duke University
Medical Center

Treatment of Scarlet Tongue

Problem

One patient in five who comes to this office manifests a scarlet tongue without soreness. Gastrointestinal complaints are present, and some patients have systemic symptoms. One woman in particular has a generalized dermatitis that resembles the color of the tongue. Histories reveal that these patients have taken broad-spectrum antibiotics, alcohol over a period of time, and large amounts of vitamin B or vitamin B complex; diabetes and other conditions have also been noted. The most likely diagnosis is moniliasis. What is the best treatment for generalized moniliasis? Amphotericin B has been recommended, but it has been noted that there are many side-effects and little improvement from the use of this agent. The incidence of this condition is increasing. Vitamins, calcium, nystatin have been used to no avail.

Discussion

First Opinion—There is no panacea for redness of the tongue and buccal mucosa. For monilial infection of the mouth, the most effective local remedy has been mouthwashes, from four to six times day, with nystatin vaginal tablet freshly dissolved in about 60 cubic centimeters of water. If *Candida* is present, there is a rapid response to this type of mouthwash within a few days. Patients in whom vitamin B complex has proved ineffective are sometimes benefited by large doses of vitamin A, particularly in the form of buccal tablets, 150,000 units each, dissolved in the mouth once daily, ostensibly to get the local effect of vitamin A on the buccal mucosa. From the description given,

pellagra cannot be definitely eliminated as a possible cause.

Second Opinion—The causes of scarlet tongue are many and varied. Other than the many diseases associated with color changes on the tongue, such as scarlet fever, some of the anemias, and pellagra, food and drugs are often causative agents. The marked increase in the use of lipstick is also to be considered. It is fashionable today to use too much of vitamin B and its complexes. In this instance a positive diagnosis of moniliasis should be confirmed. In these patients the suggested action would be to remove the cause if ascertainable. All medicaments should be withdrawn, and a high-protein, low-fat, low-carbohydrate diet should be given along with yogurt or lactobacilli preparations.

Third Opinion—It seems unlikely that these patients are suffering from generalized moniliasis. The clinical manifestations described have been observed in the absence of *Candida* and have been attributed to a temporary vitamin abnormality associated with the antibiotic-induced alteration in the bacterial flora of the intestinal tract. The symptoms usually disappear after the withdrawal of antibiotics, though this may require some time.

Generalized Moniliasis: Severely debilitated patients who have been intensively treated with broad-spectrum antibiotics, adrenocortical steroids, or roentgen irradiation are usually affected. In such instances, aspiration pneumonia or *Candida* septicemia may develop. Blood cultures should be obtained in an effort to demonstrate the typical creamy, yeast-

like colonies which grow well on Sabouraud's medium.

Therapy: The treatment of choice for the generalized infection is parenterally given amphotericin B, which has been shown to be effective in clearing the blood stream of *Candida* organisms within a few days.

Dosage: Recommended dosage is 0.5 to 1.0 milligrams per kilogram of body weight per day, to be given intravenously over a period of six hours. The duration of therapy has not been clearly defined, but a significant clinical response has occurred after four to eight weeks of treatment.

Possible Side Effects—Side-effects such as chills, fever, headache, nausea, and vomiting are common but are not so severe as to contraindicate use of the drug. Local mucocutaneous infections involving the mouth, pharynx, and lower gastrointestinal tract are much more common. A history of prolonged treatment with broad-spectrum antibiotics frequently can be elicited from such patients.

Use of Nystatin—Nystatin has proved to be most efficacious in the treatment of local infection. If the oropharynx is involved, nystatin should be used in suspension as a gargle every three to four hours. When it is thought that the entire gastrointestinal tract is involved, tablets containing 500,000 units of nystatin should be given four times daily. This type of treatment is directed at local infection, since significant blood levels of this drug cannot be achieved with oral therapy.

Adapted from *Journal of the American Medical Association* 169:202 (Feb. 21) 1959.

Simplified Technique

for Topical FLUORIDATION

CHARLES B. CALDWELL, D.D.S., Davis, California

D I G E S T

This article discusses a simplified technique for the topical application of fluoride. The technique described herein is fast and simple and will be welcomed by those who do not receive the benefit of fluoride protection in their drinking water.

Preparatory Steps

Preformed wax molds of assorted sizes are prepared in the following manner:

1. Three different sized lower study models of full dentitions are selected: small, medium, and large.

2. Strips of baseplate wax are adapted over the teeth extending approximately one-quarter inch beyond the gingival margins.

3. Gross irregularities are filled in with additional wax, impressions are taken, and new models poured which are oversize and have definite finishing rims where the baseplate wax had been added (Fig. 1). These models are sanded and soaped to a smooth finish.

4. Thin sheets of pure yellow beeswax are cut into strips, adapted over the models, and trimmed along the finishing rims.

5. The wax molds are removed and lined to within $\frac{1}{8}$ inch of the rims with strips of absorbent surgical cotton approximately $\frac{1}{8}$ inch in thickness (Fig. 2).

6. When the oversize models have been prepared a supply of these wax molds, suitable for use on both upper and lower arches, can easily be prepared by ancillary personnel.

Application of Fluoride

The topical fluoride treatment is performed in the following manner:

1. Thorough prophylaxis of the teeth is necessary including stripping interproximally with pumice on dental tape.

2. When the operator nears completion of this operation his assistant prepares the molds for use.

3. Stannous fluoride crystals may be purchased from the dental supply houses in capsules containing .4 gram. The contents of one capsule is dissolved in 5 cubic centimeters of warm water, making an 8 per cent solution, and added to the cotton liners of the selected size wax molds with an eye dropper.

4. The patient rinses his mouth thoroughly and sits in an upright position with head bent slightly forward and chin tucked in to prevent excess solution from running down the throat.

5. He is asked to swallow twice to eliminate excess saliva, one mold is placed over the teeth of the lower arch and an aspirator immediately inserted with the tip on the floor of the mouth.

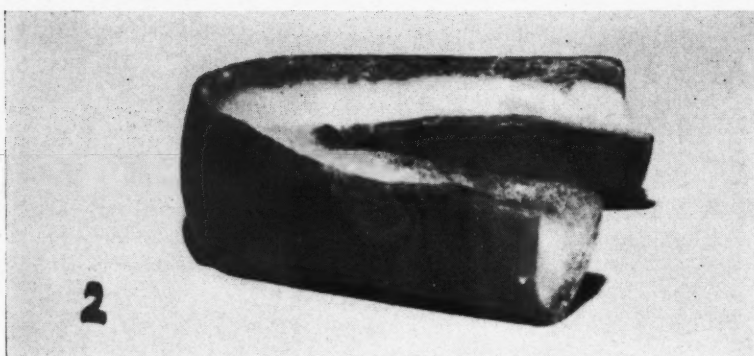
6. The wax mold is pressed into place and adapted to the ridge below the gingival borders.

7. The upper mold is adapted in a similar manner, a cotton roll inserted on each side, and the patient asked to bite down lightly and to hold gentle pressure on the rolls (Fig. 3).

8. The assistant sets the dark room timer to ring in four minutes. When



1. Working cast prepared by taking an impression of an average size lower study model with baseplate wax adapted over the teeth.



2. *Preformed molds prepared by adapting a beeswax strip over the working model and then lining with $\frac{1}{8}$ inch of absorptive cotton.*

the alarm sounds she removes the aspirator and wax molds and instructs the patient to empty the mouth but not to drink or rinse the mouth for thirty minutes.

Dilution Slight—Concentrations of stannous fluoride greater than 4 per cent are no more effective, but 8 per cent is used in this technique to compensate for any dilution by saliva. In most cases, however, little dilution occurs.

Treatment Generally Available—The total time required by the dentist to insert the molds after completing the prophylaxis is less than one minute. The fee for treatment can therefore be made low enough so that most patients for whom it is recommended will accept the treatment.

Partial Control of Dental Caries by Topical Fluoride Therapy

The following comprehensive and simple explanation of the theory and the functional aspects of caries control by fluoridation therapy is given each patient.

Information for Patients—Communal water fluoridation is the most efficient, economical, and effective method known for reducing the incidence of dental caries. The fact that fortification of a fluoride-deficient water supply results in a significant reduction in dental caries, without any known detrimental side effects, has been repeatedly demonstrated throughout the world.

Disadvantages in Sodium Fluoride Procedure—While not as efficient, economical, or effective as water fluoridation, reports from numerous scientific investigations demonstrate conclusively the potential which topi-

cally applied fluoride agents have for preventing caries. The *average* reduction of the incidence of new caries in children with *proper* surface application of fluorides is approximately 40 per cent. This is an important reduction and it would appear that all dentists would urge the use of topical fluoride therapy. There are several reasons, however, why many practicing dentists have not done so:

1. The approved technique used in the past for topical *sodium* fluoride solution treatment is a long and tedious procedure. The teeth had to be thoroughly cleaned, dried, and kept free of saliva for minutes while the solution dried. Of necessity this requires treating only a few teeth at a time. A single treatment by this method is a time-consuming process.

2. To achieve anticipated effectiveness this treatment had to be repeated four times within a two-week period.

3. The whole series of treatments



3. *Preformed molds in position in patient's mouth. Beeswax has been adapted to ridges to retain stannous fluoride solution around the teeth, aspirator placed in position to draw off saliva. Patient bites lightly on cotton rolls to stabilize molds.*

had to be repeated every two or three years to maintain effectiveness.

4. When carried out in the above manner the length of professional time involved made the treatment expensive.

5. The percentage reductions in new carious lesions have resulted from studies of large groups of children. The translation of group findings for a treatment which is less than 100 per cent effective to predictions of results for a single patient is extremely difficult.

6. Since caries continue to occur, we can only predict that the level of caries activity will be less than it would have been if the therapy had not been applied, but the particular level in each instance must be related to the subject's variable susceptibility and resistance which, at present, is unpredictable.

Results Reported on Use of Stannous Fluoride—Much of the above information derives from a symposium on topical fluorides published in

the Third Quarter 1959 issue of the *Journal of Dentistry for Children*. The same journal reports on the conclusions of the Indiana University School of Dentistry on a clinical study involving approximately 1400 children on the use of a different fluoride compound: *stannous fluoride*. The definitive results of this study are summarized below:

1. Single applications of *stannous fluoride* are even *more* effective than the series of four treatments of *sodium fluoride*.

2. A "whole mouth" technique works satisfactorily so all the teeth may be treated at one time thus reducing the length of time and the expense involved.

3. Yearly repetition of the treatment after each cleaning prolongs the effectiveness.

4. While most controlled experiments thus far have been on grade school age children, limited data indicates rather conclusively that new caries are reduced in all age groups

from two to thirty-eight. No data are available beyond this age.

5. The *stannous fluoride* treatment appears to reduce significantly the incidence of new caries even when children have been reared in an area provided with fluoridated water.

Comment

Based on the above information and conclusions the writer now recommends the use of *stannous fluoride* treatments especially during the caries susceptible period from five to eighteen years of age, and in manageable children down to the age of two. Maximum benefits can only be expected if the treatment is repeated annually. Patients must realize that results in individual cases still cannot be predicted, but an *average* reduction in new caries incidence of 40 to 50 per cent is possible with the single yearly treatments described.

338 B G Street

Testing for Fluoride Idiosyncrasy

Query

Exactly what tests and office procedure can be used to determine individual idiosyncrasy or intolerance to fluorides? Are there practical tests available to the family doctor which he can use to determine whether various subjective complaints are actually caused by fluoride ingestion or just a fear reaction to artificially fluoridated water in a community?—that is, a concrete test which may be used to identify early signs of fluoride poisoning, so that a family physician may be guided in his treatment and thereby prevent intractable, neglected cases of chronic fluoride poisoning.

Discussion

There are no simple tests for blood or urinary fluorides, such as may be

carried out by the physician in his office or by the usual clinical laboratory.

Variety of Tests Made—Precise tests require a high degree of chemical skill and equipment of uncommon nature. In hundreds of instances, these tests have been applied in children and adults prior to the institution of artificial fluoridation, as well as during long periods of properly fluoridated water inhibition, after removal from artificially fluoridated water supply, and in connection with defluoridation of waters naturally high in fluorides.

Results of Tests—In adults, on initial exposure to fluoridated water the urinary fluoride increases in time and in proportion to the fluoride intake, but a balance is reached after which

the output essentially equals the intake. In growing children, the leveling off point is not reached during the growth period, but fluoride retention remains within the limits of tolerance.

No Report of Harmful Effects—There is no evidence that the quantity of fluorides thus entering the body leads to any demonstrable indications of harm. This statement does not apply to water consumption when the natural fluoride content is excessive nor to high industrial intake of fluorides. There are no confirmed reports of chronic fluoride poisoning from properly artificially fluoridated waters.

Adapted from Questions and Answers, *Journal of the American Medical Association* 166:1405 (March 15) 1958.

Clinical Applications

of OCCLUSION and ARTICULATION-

Part Seven

LEO STOLL, D.D.S., Woodmere, Long Island, New York

D I G E S T

In this installment which is the seventh in a series appearing under the same general title, the author illustrates clinical cases in which the methods described in earlier chapters are applied.

Clinical Cases Using the Novel Methods Previously Described

The accompanying series of photographs dramatically illustrate the oc-

126, A and B.

The occlusion of the teeth of dentures in the mouth before any occlusal adjustments were made, as they were received from the laboratory.

127, A and B.

The three-point centric relation bite record in place between the dentures in the mouth.

128, A and B.

The dentures mounted on the articulator and related with the centric relation bite record.

129, A and B.

The contact relation of the teeth when

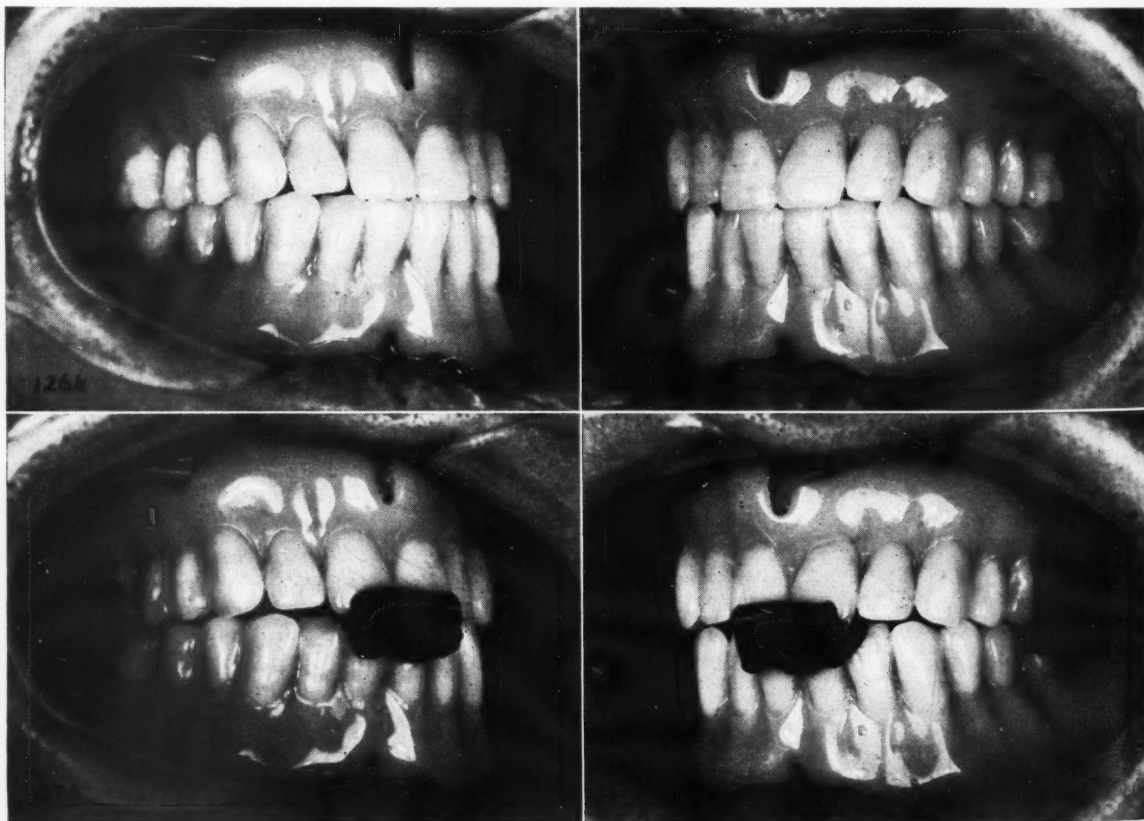
the dentures are occluded on the instrument after the bite record is removed. Particular attention should be given to the unbalanced nature of the occlusal contacts of the opposing teeth. There is a considerable degree of space between the teeth on the right side, when contact of the teeth is made on the left side.

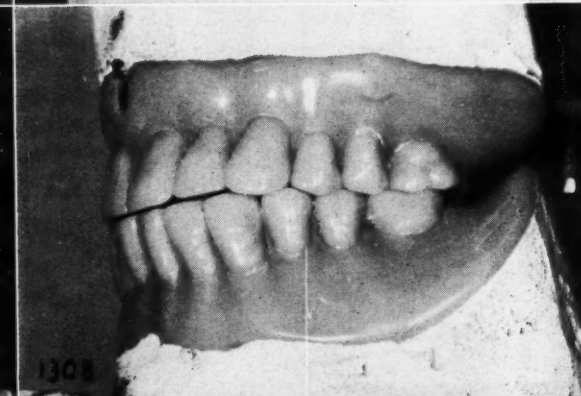
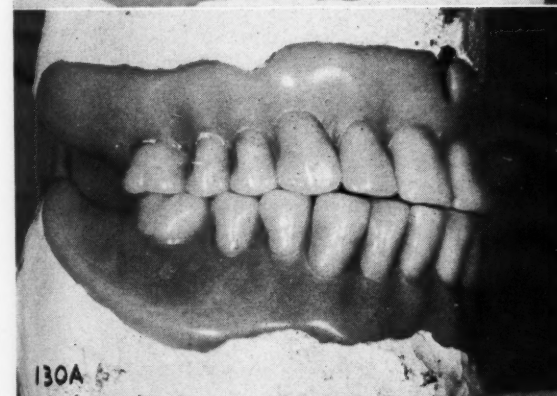
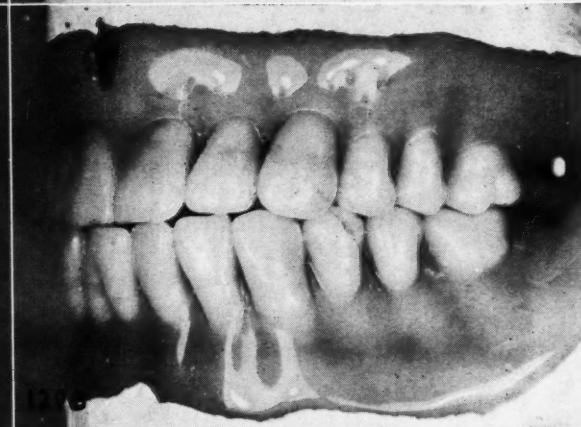
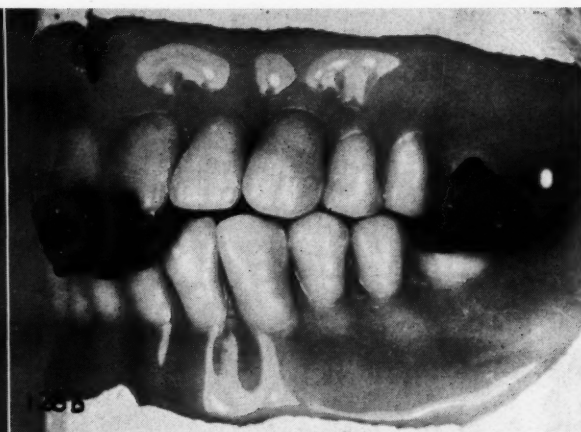
130, A and B.

The occlusion of the teeth after they were balanced to be in harmony with the recorded centric relation of the dentures on the articulator.

131, A and B.

The occlusion of the teeth of the dentures in their centric relation in the mouth, after the occlusion of the teeth was balanced to be in harmony with the centric relation.







clusion of a set of full dentures before and after occlusal adjustments for the centric relation were made. These illustrations should definitely disprove the philosophy that the patient's mouth is a better clinical articulator than any mechanical device.

Some Movements Cannot be Reckoned in the Mouth—It is true that the restorations made on the instrument must eventually function in the patient. However, the shifting movements of the restorations as well as

the minute deviations of the mandible during function are elusive and cannot be observed or reckoned within the mouth. Visual observation in the mouth is also difficult.

Discrepancy May Exist—These clinical difficulties can only be solved mechanically. An occlusion which may appear to be balanced in the mouth may prove to be completely unbalanced when checked properly with an articulator.

Occlusion Must be Adjusted on Ar-

ticator—The photographs also demonstrate that regardless of how correct the occlusion of a set of dentures may

132, A, B, and C.
The centric relation occlusion on the articulator.

133, A, B, and C.
The right lateral relation occlusion.

134, A, B, and C.
The left lateral relation occlusion.

135, A, B, and C.
The protrusive relation occlusion.



appear to be in the mouth, the occlusion of the teeth should be checked and adjusted on an articulator before the dentures are given to the patient. For the occlusal relations of the teeth in centric relation of the jaws, this is mandatory. The right and left side views of the occlusal relations of the teeth of the dentures in their centric relations are shown in Figures 126 to 131.

Occlusal Difference Shown on Articulator—The remarkable resemblance between the occlusion of the teeth, shown in Figure 126, A and B,

136, A, B, and C.
The centric relation occlusion in the mouth.

137, A, B, and C.
The right lateral relation occlusion.

138, A, B, and C.
The left lateral relation occlusion.

139, A, B, and C.
The protrusive relation occlusion.

before the occlusal adjustments were made, and in Figure 131, A and B, after the occlusal adjustments were made, makes it impossible to distinguish them from each other. As was

shown on the articulator, the occlusion of the teeth, before and after the occlusal adjustment, was quite different.

Corrected Occlusion Visualized—The occlusion of the teeth of a set of full dentures mounted on the articulator after all the occlusal adjustments were made in accordance with the methods and techniques used by the author is shown in Figures 132 to 135.

Occlusion of Dentures in Mouth Illustrated—The occlusion of the teeth of the set of full dentures shown on the articulator, is shown in the patient's

mouth in Figures 136 to 139. The photographs show the occlusal relations of the teeth in their centric and eccentric relations. The eccentric relations shown were obtained by the

smooth gliding mandibular movements of the patient. Unfortunately, the photographs cannot demonstrate the smooth manner in which the movements were made or that the dentures

themselves were not visibly displaced during the mandibular movements.
(End of Part Seven)

246 Woodmere Boulevard

Health Problems Involved in Chemical Additives to Foods

W. CODA MARTIN, M.D., New York

Additives Responsible for Increase in Degenerative Diseases

For several years, as a physician, I have been interested in geriatrics and degenerative diseases. I have been particularly concerned with the harmful effects of some of the chemical additives in foods today. It has been well established by competent authorities that many of these chemicals interfere with the body's normal enzyme reactions and they are, therefore, directly responsible, in part, for the marked increase in degenerative diseases in the United States today. This increase in chronic diseases has already become a major medical and

economic problem. The continued use of these chemical additives, some of which are known as carcinogens and others of nonnutritive value, can only tend to increase the number of degenerative diseases, including cancer.

High Percentage of Chronic Disease

A recent survey of chronic diseases in the United States from such sources as the American Cancer Society, American Heart Association, Foundation for Infantile Paralysis and other authorized agencies established the existence in the United States of a total of 88,575,000 registered cases of chronic diseases. Although it is pos-

sible that a certain percentage of these diseases may be duplicated in one person, it is none the less horrifying to project such a figure on the national population of 168,000,000 people.

All Age Groups Affected

This health problem is not confined to the older age group. In 1953 Draft Director Lewis B. Hershey stated that the nation may be "out of man power" in the next two or three years if the present physical standards are not lowered. At that time 1,700,000 men out of 4,000,000 examined were rejected as unfit for service. Since then, rejections have reached to approximately 52 per cent.

From *Subcommittee on Health and Science of the Senate Committee on Interstate and Foreign Commerce: Panel Discussion of Scientific Problems Involved in Testing and Evaluating the Safety of Chemical Additives to Foods* (July 30) 1957.

Calcium Intake

In the report of a recent project rats were fed different levels of calcium from weaning to approximately 2 years of age with the following significant results.

Calcium Retention Improved

The animals on the low level grew somewhat more slowly and bone ash was somewhat lower for a time, but eventually they caught up to those on the higher calcium level. Throughout life and even in old age, however, they retained calcium better than the high-calcium group when tested.

Possibility of Atrophy of Mechanism—It is suggested that perhaps with some degree of calcium restriction, the bone salt is deposited in a form which exchanges less rapidly. The speculation occurs that perhaps when high levels of calcium are fed over long periods the "calcium retaining mechanisms," whatever these may be, might have little work to do and become atrophied. Instances come to mind, of which the musculature is the most obvious, where exercise of the function is necessary to keep it operating efficiently.

Negative Calcium Balances in

Old Age—It is well substantiated that negative calcium balances are common in old age. The traditional view is that we should load up so that we will be well prepared when this time comes. It is possible that this logic is completely false. We should recognize the fact that we do not know.

Adapted from *Evaluation of Mineral Adequacy* by D. M. Hedsted in *Methods for Evaluation of Nutritional Adequacy and Status*, Department of the Army, Office of the Quartermaster General (December) 1954.

An Evaluation

of a Pernicious DENTAL HABIT

DUANE A. SCHMIDT, D.D.S., Fort Dodge, Iowa

DIGEST

According to reliable estimates 17 per cent of all children five years and younger habitually suck their thumbs. This totals roughly 2,000,000 children (based on the 1950 census figures). The wide scope of this habit is readily evident.

Thumbs and fingers introduced into a child's mouth initiate an insidious syndrome: abnormal forces counterbalance the guided symmetry of pressures in and about the oral structures; immature bone and soft tissue conform to allow room for the offending object; and habit patterns develop and become fixed. This article discusses the etiology, development, and various methods of prevention and treatment of a habit which can have serious consequences.

Destructive Forces In Operation

If foreign objects caused no real or apparent damage to the oral structures or the child's well-being there would be no cause for concern. As every dentist has observed, however, adverse results can be noted in arch form, facial contour, speech, and psyche in those who have at one time habitually sucked their thumbs or other foreign objects. Some of these forces present are the following:

Changes in Bone—Wolfe's Law affords a basis for determining the possible prognosis in pernicious dental habit cases, that is, all changes in the function of bone are attended by

definite alterations in the internal structure and external conformation.

Occurrence of Pressures—During sucking of the digit lingual pressure on the upper anterior teeth occurs. This pressure is concomitant with osteoclastic and osteoblastic activity in the alveolar bone giving an antero-version to these teeth. Normal lip pressures molding the arch are counterbalanced and a disharmony of form becomes noticeable.

Labial Surfaces Affected: Conversely, the labial surfaces of the lower anterior teeth are affected in a similar but reverse manner; the normal pressure of the tongue on the lingual surfaces of these teeth is overpowered and lingual movement begins. Eruption is retarded to a certain extent by the placement of the object between the arches.

Posterior Teeth Forced Lingually: In the posterior segments the sucking action causes buccal pressures forcing the posterior teeth lingually. Arch collapse is imminent as normal tongue pressures are counterbalanced.

Degree of Severity Differs—All the destructive forces do not appear in all persons who adopt this habit, and also the degree of severity differs. The amount of malocclusion brought about by these forces is dependent on the character of the bone involved, the frequency and duration of the habit, and the general health and genetic endowment of the person involved.

Etiology

It has been found that an infant may suck his thumb in utero or at birth. The urge to suckle is inherent and apparent in all newborn infants. Yet the

fact that the tendency is present in the infant stage gives no prerogative for the child to maintain this natural habit in later years when it is no longer a method of obtaining nourishment or developing the musculature.

Natural Characteristics may be Prolonged—Each stage of development is attended by certain characteristics and tendencies; natural occurrences during one stage may be completely inappropriate in another. There is a phase in which natural suckling is a normal and healthy function but observation and experience have shown that there are stages of abnormal sucking.

Future Oral Health Prepared—During the first year everything goes into the infant's mouth. This is entirely natural and is a normal phase of the infant's proper development. Now is the time to lay the groundwork in good health, plenty of exercise, adequate activity, and generous nursing or suckling time. This regime in addition to the love and affection vital to the infant, usually avoids overt thumb-sucking habits in the future.

Early Thumbsucking—The 12-month to two-year stage is commonly referred to as the "hand-to-mouth" stage. Passive mouthing of the thumb now may lead to active sucking later. Deformity of the arches may begin to appear if the act is positive enough.

Deformities may be Noted—Between the second and the fifth years incipient deformities noted in the earlier stage become pronounced. Speech difficulties incurred by arch deformity may be exhibited. The child has now developed the power of reasoning; consequently this is the best time to institute the proper method for replacement of the pernicious dental habit with one of personal hygiene.

Additional Causes—Although thumb sucking is a natural function which may develop from a passive to an active habit level there may be contributory factors. Insufficient food, restless sleep, lack of activity, boredom, parental rejection, diminished bottle time, painful eruption of teeth, inflamed tonsils, and specific illness may all be inciting factors in thumb-sucking. A passive habit developed during any one of these situations may lead to a persistent habit pattern.

Treatment

Because the suckling function is as normal as breathing and extremely beneficial to the infant's development, only preventive measures are attempted at first. Before an environment or situation favorable to thumb-sucking has a chance to manifest itself the possibility is eliminated by adequate nutrition for systemic health, proper nursing schedule, and other factors essential to normal growth and development.

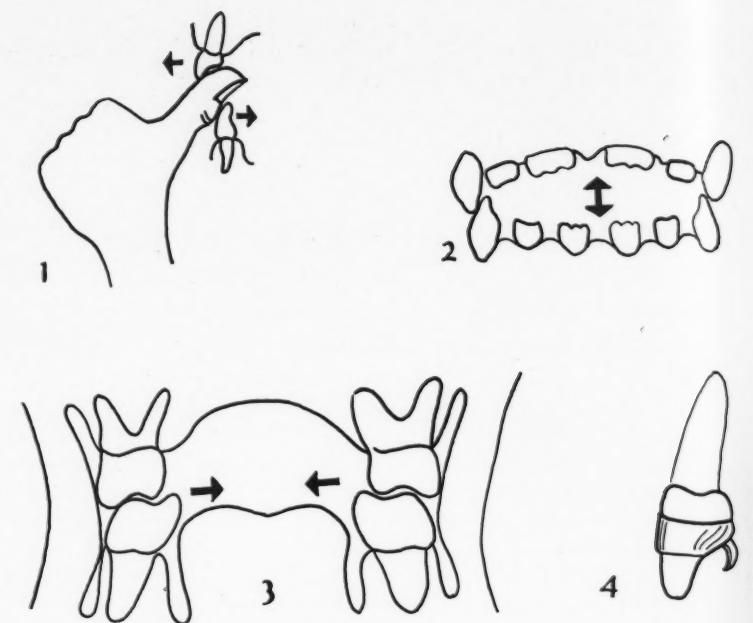
Preventive Treatment Continued—During the hand-to-mouth stage treatment remains preventive in nature. The child is further aided in all the normal healthy aspects of growth so that an environment favorable to the inception of thumb-sucking will not develop.

Habit Replaced—Not until the child is able to reason should attempts be made to replace the habit with one of good personal hygiene.

Effects of Untreated Habit

The possible sequelae of untreated pernicious dental habits are numerous and may include the following:

1. Malocclusion; varied by duration and frequency of the habit, character of the bone, and general health and genetic endowment of the patient.
2. Mouthbreathing is commonly found due to malpositioned teeth. This is often associated with stomatitis or gingivitis due to the dried oral mucosa, and bacterial and floral imbalance.
3. Tongue-thrusting habits may develop which may maintain malocclusion even after cessation of the thumb-sucking habit.



1. Labial and lingual forces encountered in digital suckling cause contradictory forces, illustrated here in the anterior segments of the arches.

2. Incisal forces brought to bear in thumb-sucking result in retarded eruption of the anterior teeth.

3. Posterior collapsing forces in thumb-sucking are a product of the cheek wall pressures against the buccal surfaces of the teeth.

4. A spur is shown attached to an anterior banded tooth. This is to be placed in the area involved in the habit.

4. Respiratory infections may be enhanced by conditions unfavorable to normal respiration.

5. In later years permanently distorted arches are difficult to fit with artificial dentures.

6. Psychic problems related to a deficient esthetic appearance.

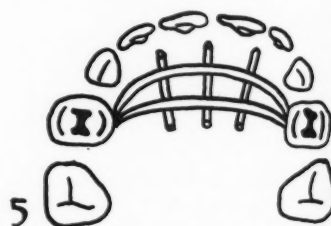
Possibility of Neuroses—Deformity or speech defects, or the presence of the habit itself at an age when it is unnatural encourages the development of neuroses. This is a factor frequently overlooked in the presentation to the parents of the rationale for correcting the habit. Parents can readily understand that the necessary psychologic adjustment can more easily be made by the child when he is young than later when dental deformity has created more serious problems.

Habit Transference—A problem that may be manifest after the habit is stopped is transference to tongue-thrusting, lip or cheek-biting, finger-

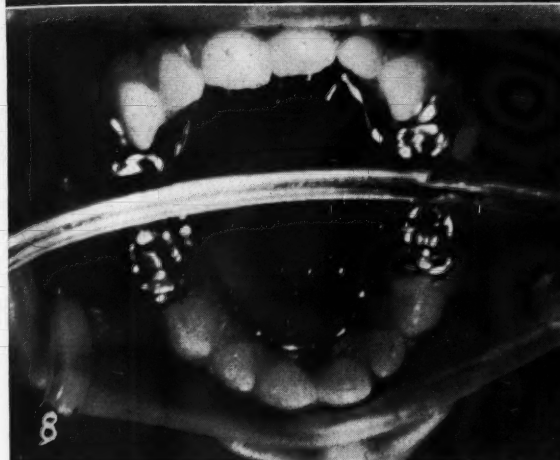
nail biting, or similar substitutes. The habit which might possibly come about after the thumb-sucking ceases may be as destructive as the original habit. This development must be prevented.

Early Intervention

When the child is first able to rea-



5. Upper arch spur-type fixed crib appliance. This appliance may be attached with steel crowns or bands usually to the first primary molars. It is adapted to place the spurs in the area involved in the habit.



6. Three and a half-year old patient with serious pernicious habit problem. Corrective measures of proprietary medication, Band-aids,[®] entreaties, and exhortations have failed.

7. Overjet orthodontic problem in the same patient showing an aperture of over 4 millimeters, the arbitrary distance beyond which corrective procedures should be instituted, regardless of age.

8. Fixed-crib appliance in position located in area involved in the habit and constructed so as to interfere minimally in speech patterns. Habit stopped immediately as a result of this appliance.

9. Habit appliance removed after three months showing arch remodeling due to upper lip pressures and absence of antagonistic pressure of thumb. Child has not returned to thumb habit 15 months later.

son, measures are instituted to arrest the habit. Psychologic problems and habit transference may be lessened by prompt action at the right time performed in a manner acceptable to the child. Approximately 75 per cent of incipient deformity will self-correct without orthodontic intervention. As the habit becomes more fixed, the chances for successful nontraumatic cessation diminish as do the chances for selfcorrection of existing deformity.

Child Cooperation Necessary—Without the child's cooperation there is no hope for any sort of successful

treatment. Usually it is quite easy to enlist the child's aid for most children want to stop sucking their thumbs.

Continuation Discouraged—The habit may be described as an unclean one, or undesirable, or unattractive in some manner which is understandable to the child. The act must be brought from the unconscious to the conscious level in the child's mind. When he realizes that it is a destructive habit and wants to stop empirical methods are instituted beginning with the simplest and progressing to the point where thumbsucking ceases completely.

Measures Employed In Treatment

The easiest measure to take is to wrap a Band-aid[®] or a wire splint on the offending digit, or a proprietary preparation of a disagreeable tasting medication may be painted on the thumb. If these fail further measures are taken.

Suction Prevented—In order to effect suction a seal must be established between the thumb and the surrounding tissue. If this seal is broken sucking is prevented. This principle is utilized in the spur-type or fixed-crib appliances. In the former, small

lingual spurs of 0.28-gauge wire are spotwelded and soldered to orthodontic bands adapted to the teeth. These serve as reminders to the child not to suck his thumb; also, the seal is broken and suction cannot be affected.

Fixed-crib Appliance—This is similar in function having stainless steel crowns or orthodontic bands cemented to molar teeth with two lingual arch wires attached. Spurs are placed on these wires. With the child's cooperation these methods have proved satisfactory. Speech must be watched with special care when using these appliances. A habit replaced for several weeks will usually remain so indefinitely.

Summary

Three stages in the development of

thumbsucking habits in the growing infant and child have been noted. In the first stage everything is placed in the mouth. Suckling is normal and should be uninhibited but systemic predisposing factors watched. The second stage is characterized by passive mouthing which may progress to active habit formation. Deformity if stopped here is self-correcting; however, treatment is still formative and preventive in nature.

In the third stage from two to five years powers of reasoning develop within the child. If the act is positive enough to be considered a habit the child's cooperation is enlisted and corrective measures are instituted. Special care must be exercised with appliances so that speech is not interfered with. Note that the habit is not

broken but replaced with one of essential personal hygiene. Deformity will probably be self-corrective if thumbsucking ceases at this stage.

After six years the child may develop psychologic problems when the habit is stopped. Also the habit may be transferred to another equally destructive one. The benefits to be derived from well-timed replacement have been described.

It is difficult to provide the type of environment inhibitory to the inception of thumbsucking; but it is also difficult and more costly in time and money to correct malpositioned teeth and the myriad of sequelae so often found in uncontrolled pernicious dental habits.

504 Carver Building

Modifications of the Oropharyngeal Bacteria with Changes in the Psychodynamic State

STANLEY M. KAPLAN, M.D., and LOUIS A. GOTTSCHALK, M.D.

Summary

1. An experiment was carried out to validate the findings of a previous study which suggested an association between a subject's psychodynamic state and the relative number of streptococci cultured from her oropharynx. Specifically, the psychophysiologic relationship indicated in the preliminary study was as follows. When the patient's intense dependent wishes were inhibited from expression because of feelings of shame and guilt, and when the patient attempted to resolve this conflict by the compromise of accepting or seeking punishment

and the enhancement of suffering to gain support, attention, or human contact, the streptococcus colony counts in her throat cultures tended to be extremely high.

When she was attempting to resolve her conflicts without using such masochistic devices and when she was finding herself a more worthwhile person, these bacterial counts were fairly low.

2. Immediately after a bacteriologic culture of the patient's throat was obtained, tape-recorded verbal samples were elicited from the patient. These samples were quantitatively analyzed for their psychologic content by

means of a system of verbal analysis.

3. In an initial 20 trials a significant correlation was demonstrated between the psychologic and bacteriologic variables. The comparison of scores obtained from another 12 verbal samples and throat cultures again revealed a significant correlation. Combining these 32 rankings of psychologic state and comparing them to the bacteriologic rankings gave an over-all correlation of 0.46. These correlations reach convincing levels of statistical significance.

From *Psychosomatic Medicine* 22:319 (July-August) 1958.

Benign Hypertrophy of Masseter Muscle

Two cases of benign hypertrophy of the masseter muscle have been reported by H. Oppenheim and M. Wing in *Archives of Otolaryngology*. Such cases are not frequent and are important perhaps chiefly because of the difficulty in differ-

ential diagnosis. The authors believe diagnosis is aided by the identification of the triad consisting of a growth in the masseter region, sialographic demonstration of a laterally displaced Stensen duct in the presence of normal

filling of the parotid gland, and roentgenographic evidence of an exostosis of the mandibular angle.

From *International Abstracts of Surgery, Gynecology, & Obstetrics* 110:128 (February) 1960.

The EDITOR'S Page

REPLACEMENT of teeth may vary in quality from the makeshift appliance to one that is a thing of beauty and precision. Most replacements fall into the mid-zone between crudeness and a work of art, with the edge, unfortunately, going to the side of imperfection. Many dentists are capable of producing better technical results than the restorations that they actually execute. Pressure of work, too much speed, too low a fee are among the factors that result in prosthodontics of a quality less than admirable.

There is no substitute for the "pride of craftsmanship." Even the dentist who is not gifted with superior skill may compensate for his deficiency by closer application and by a pride in accomplishment. In the case of the talented technician who lacks pride we observe the depressing spectacle of a person who has not fulfilled the potentialities of his natural gifts.

In this day many of our mechanical devices are produced for the mass market and inferior merchandise is widely offered for sale. What would happen to the public if the same philosophy of mediocrity extended into the dental profession? Cutting costs by producing inferior products is a way to ensure higher profits. It is a popular method that is followed by management in some industries. It will be regrettable for the public well-being if the dental profession adopts this policy.

Most technical books are written to give information. If inspiration comes to the reader it is a by-product and not the primary design. Occasionally a reader may look at a new publication and sense that something extra in attention was given to the preparation of the material. Such a book on prosthodontics has been prepared by three members of the faculty of the Indiana University School of Dentistry.¹

Crown and bridge prosthodontics is a fine combination of an art, of engineering principles, of technical skill. A fixed prosthesis that fulfills these requirements is an accomplishment that should be a source of pride to a dentist and a comfort to the patient. The fact that many restorations fall below these requirements is a human failure and not due to lack of knowledge that is readily available or to a paucity of excellent materials. Indifference to esthetics, ignorance of engineering principles, technical incompetence are deficiencies in the *application* of knowledge: human laziness and inertia.

Any dentist who buys the book by Johnston, Phillips, and Dykema and does no more than study the pictures of the various preparations that are used to support the retainers for fixed appliances will be a better dentist. The retainers represent every contingency in restoration. This does not mean that the text is unimportant. It is important, albeit too elementary in some places. It is better, however, to oversimplify than to be too pedantic or superscientific. The book is what the clinical dentist likes: it is practical.

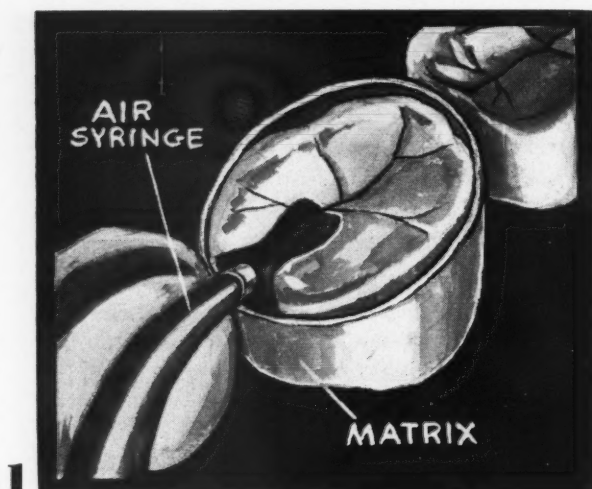
A bridge is a biomechanical replacement. It restores tissue that has been lost by disease and at the same time creates a mechanical device that helps prepare food for the first stage of digestion: "If a bridge is built soon after the loss of a tooth, the patient should benefit in many ways. The bridge should contribute to mastication; it should augment the ability of the patient to enunciate; it should restore and preserve contacts between the abutments and the approximating teeth, and also all others in the arch; and it should maintain the positions of the opposing teeth and the normal tone of the supporting structure.

"When a space is unfilled for a long time, there will be some shifting of position of the teeth approximating the edentulous area and possibly extrusion of the opposing teeth. Even here a bridge should substantially aid mastication, help reinstate contacts of appropriate strength, size, and location, and improve the health of the alveolus and periodontium and prevent further injury to them. Any bridge at all times should create the illusion of natural teeth."

All of us are constantly endangered by routine. Although most procedures should be improved by repetition, some are not. There are times when doing the same thing over and over again leads to careless performance. If every dentist who is doing crown and bridge prosthodontics were to check his performance against the principles and practices expressed in this book he would find a significant improvement in the quality of his output. Such a self-analysis might be done as a commendable discipline several times a year.

The world of technology and science would be sterile if men did not make self-sacrifice by publishing their knowledge to share with their colleagues. Authorship is one of the loneliest of vocations—and one of the most rewarding. The reward to the writer on scientific subjects seldom comes in financial form; but in the improvement of the health and elevation of the spirit of mankind.

¹Johnston, John F.; Phillips, Ralph W.; and Dykema, Roland: *Modern Practice in Crown and Bridge Prosthodontics*, Philadelphia, W. B. Saunders Company, 1960.

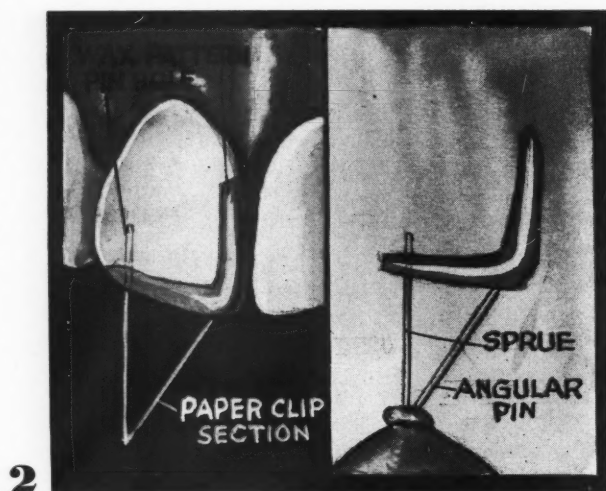


Clinical and Laboratory Suggestions

Removal of Excess Mercury

Joseph J. Beckner, D.D.S., Loveland, Colorado

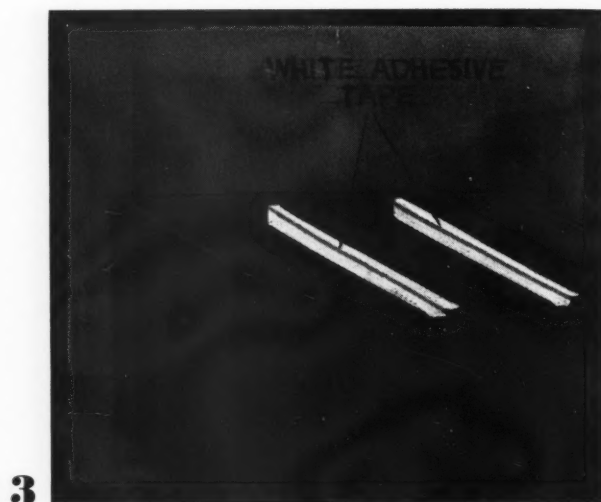
1. Place the tip of the cold air syringe against the amalgam and move the tip lightly over the surface. The stream of air will remove the excess mercury.



Class Four Pinlay

Richard M. Woods, D.D.S., Baytown, Texas

2. Prepare the pinhole the diameter of a paper clip. After the wax has been adapted place a section of paper clip in the pinhole. Attach another pin to the angle of the pattern to facilitate removal of the pattern.



Processing Tank For Markers

William L. Peacock, D.D.S., Hartsdale, New York

3. Place strips of one-half inch adhesive tape along the edges of the two compartment dividers. The dividers may be seen easily in the dark room.

READERS are Urged to Collect \$10.00

For every practical clinical or laboratory suggestion that is usable, DENTAL DIGEST will pay \$10 on publication.

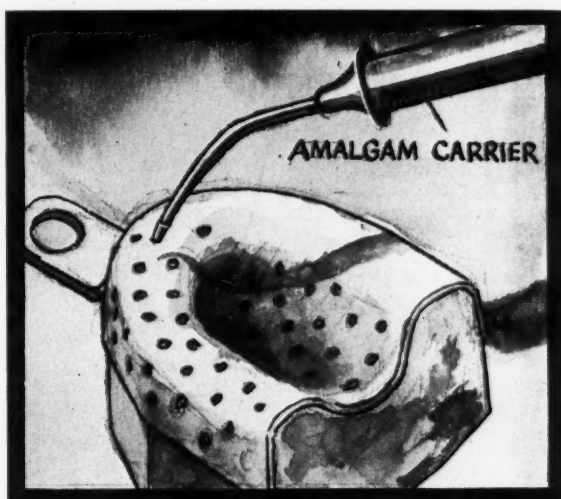
You do not have to write an article. Furnish us with rough drawings or sketches, from which we will make suitable illustrations; write a brief description of the

SUGGESTIONS . . .

Preparing an Acrylic Tray

I. Lee Singer, D.D.S., Baltimore, Maryland

4. Perforations in a cold-cure acrylic tray may be made with an amalgam carrier before the acrylic has set.

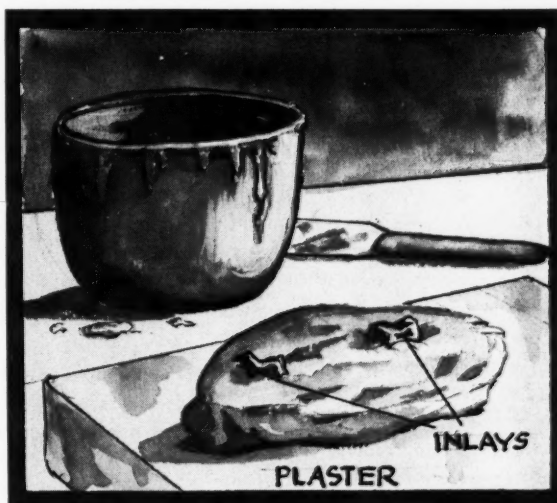


4

Polishing Inlays

A. E. Richardson, D.D.S., San Diego, California

5. To hold inlays while they are being polished embed the castings in a mix of plaster with the external surfaces exposed.

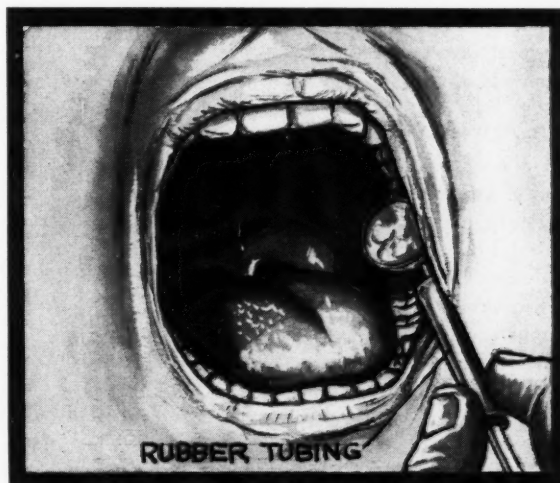


5

Protection of the Cheek

Lawrence Wiland, D.D.S., Flushing, New York

6. A piece of rubber tubing placed on the handle of the mouth mirror will act as a protector to the angles of the mouth and for the cheek while operating in the posterior areas.



6

technique involved; and jot down the advantages of the technique. This shouldn't take ten minutes of your time. Turn to page 334 for a convenient form to use.

Send your ideas to Clinical and Laboratory Suggestions Editor, DENTAL DIGEST, 708 Church Street, Evanston, Illinois



Head and Neck Cancer

Most cancers of the head and neck spread unilaterally through tumor emboli to the regional lymph nodes. Bilateral metastases may occur however, if the primary lesion is near the midline. The deep cervical lymphatics are involved first by the tumor emboli and the superficial group is usually infiltrated late in the disease process by retrograde metastases.

Radical neck dissection in discontinuity is that in which the primary lesion is excised and, after two or three weeks, neck dissection is performed. Theoretically, the delay permits cancer cells in the lymphatics to reach the nodes. This staged procedure may be done when regional metastases are demonstrable but operable, but prophylactic neck dissection in discontinuity should never be done.

In general, neck dissection should not be done if distant metastases, fixation of cervical lymph nodes to underlying structures, secondary lymphatic skin invasion, or physical intolerance to major operation exists. In most instances, neck dissection can be delayed without serious consequences until node metastases appear.

Bilateral neck dissection is done most frequently for cervical metastases from primary tumors of the thyroid, larynx, or tongue. Neck dissection is sometimes done prophylactically for cancers of the tongue and buccal cavity but seldom for cancers of the lip. With bilateral surgery a radical neck dissection is done on the most involved side and a supraomohyoid dissection on the contralateral side.

The primary tumor and regional lymph nodes may be removed in continuity. A hemimandibulectomy when necessary and wide excision of the intraoral or lingual primary site can be done in continuity with a radical neck dissection, thereby excising all lymphatic channels between the lesion and satellite metastases. Tracheotomy must always be done when extensive surgery or intraoral structures is contemplated.

Supraomohyoid neck dissection has

MEDICINE

and the Biologic Sciences



largely replaced suprahyoid and submaxillary dissections. The jugular vein is not sacrificed, and the procedure may be done either bilaterally or unilaterally. Complete radical neck dissection comprises excision of the sternomastoid muscle, the internal jugular vein and the contents of all the triangles of the neck on the affected side. Structures preserved are the phrenic, vagus, and hypoglossal nerves, and the carotid artery. Radical neck dissection effectively deals with all regional lymphatic depots.

Prognosis after neck dissection with positive nodes is more favorable with cancer of the lip than with other malignant tumors of the head and neck.

Copeland, Murray M.: An Evaluation of Neck Dissection, Ann. Surg. 141:910-939 (May) 1955.



Extensive Burns in Children

In children severe burns are accompanied by rapid and inordinate loss and shift of water, colloid, and electrolytes. Also there may be a serious destruction of erythrocytes.

These processes culminate in shock and hypoxia. Immediately after burning, the general condition may be misleading. This may lead to a tragic omission or delay in measures to prevent or modify shock.

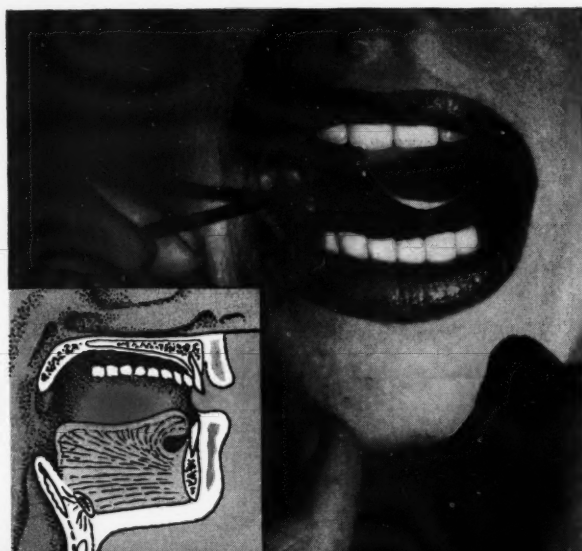
The patient's needs must be foreseen to prevent irretrievable losses. Infants and children often sustain shock from burns of depth and extent not associated with systemic effect in adults. The younger the child, the less well is a burn tolerated. A burn of over 12 per cent of the body surface is likely to induce shock at any age during childhood. In the first four to five years of life, a burn of 8 per cent of the body surface may be dangerous.

Estimation of the extent and depth of a burn is important for planning therapy. The usual tendency is to underestimate depth. To permit continuous reevaluation of extent and depth of burn, the exposure or open method of local treatment is recommended.

General and supportive treatment of the extensively burned child is initiated immediately. A catheter for intravenous therapy is securely placed at the earliest possible moment. An indwelling urinary catheter is essential to control parenteral therapy. Oxygen is given to correct hypoxia. Sedative and analgesic drugs are usually not needed in large quantities and the depressing effects are undesirable. Once handling of the child has ceased, restlessness and appearance of discomfort are usually signs of impending or actual shock and hypoxia. Antishock measures rather than opiates are advisable. Adequate tetanus prophylaxis is mandatory.

Antibiotics in full therapeutic dosage should be started early to prevent septicemia, beta-hemolytic streptococcal infection of the skin, and nephritis. Nothing should be given by mouth during the first twenty-four hours after burning, since early oral feeding may cause vomiting, diarrhea, or gastric dilatation. Thirst in the early period is a sign of impending shock and is an indication for intensifying parenteral treatment not oral fluids.

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REFERENCES: 1. Kutscher, A. H., *et al.*: Oral Surg. Oral Med. Oral Pathol. 12:1080-1089 (September 1959). 2. Cahn, M. M. and Levy, E. J.: Antibiot. Med. & Clin. Ther. 6:734 (December 1959).

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teral therapy must be individualized. In replacement of surface loss, 50 cubic centimeters of fluid for each 1 per cent of area burned is allowed in the first forty-eight hours. One-fourth of the total is given in each twelve-hour period. The fluids are given as 50 per cent colloid and 50 per cent balanced electrolyte solution.

Once therapy is started, the rate of fluid administration is regulated by urine volume. A urine volume of 30 cubic centimeters per hour is satisfactory. If therapy is begun after shock has occurred, the urine output may not increase for several hours and vigorous treatment is needed.

Senz, Edward H.: *Extensive Burns in Children, California Med.* 83:352-365 (October) 1955.



Liver Cirrhosis

Chronic malnutrition, particularly of protein and possibly of choline and methionine, is an important factor in the genesis of active and chronic liver disease in man. Dietary treatment should provide sufficient nutrients to improve nutritional status and also to repair the deficiencies that lead to fatty infiltration, necrosis, and parenchymal disorganization of hepatic cells. The diet should supply enough protein to allow positive nitrogen balance and sufficient calories to permit proper utilization of other nutrients. Alcohol is absolutely interdicted when implicated.

A satisfactory diet supplies 2,000 to 2,500 calories daily, with 70 to 100 grams of protein, sufficient fat for palatability, and adequate B vitamins. The patient must eat all of the diet unless ascites formation restricts sodium, hepatic coma limits protein, or massive gastrointestinal bleeding necessitates elimination of all food.

Although patients with liver disease have many abnormalities of intermediary metabolism, a positive nitrogen balance can usually be maintained. The defects in metabolism limit the speed of regaining normal nutrition, but most patients with an adequate diet over a long period of time show gradual nutritional im-

provement, provided activity of the disease process has ceased.

Abdominal paracentesis is seldom necessary for relief of ascites and edema and should be avoided if possible, since large amounts of protein and electrolytes are lost from the body. Restriction of sodium intake to approximately 200 milligrams daily usually halts ascites formation. Occasionally, diuresis and disappearance of ascites and edema will be prompt. However, diuresis is usually gradual and prolonged.

Massive upper gastrointestinal hemorrhage is the most frequent of the fatal complications of hepatic cirrhosis. Accurate diagnosis of the source of the hemorrhage is essential for rational therapy. Patients may bleed from: peptic ulcer, gastritis, or ruptured esophageal varices. As soon as blood is replaced and the patient's condition stabilized, the esophagus and stomach are examined roentgenographically with thin barium. Adequate blood replacement and maintenance of fluid and electrolyte balance are essential.

Hepatic coma is the most common terminal event in cirrhosis and may be precipitated in susceptible persons by operation, paracentesis, administration of ammonium salts, high-protein diet, and sedatives such as morphine and paraldehyde. Management requires limitation of protein and meticulous maintenance of fluid and electrolyte balance.

Most patients with hepatic cirrhosis are chronic alcoholics. Psychologic treatment and support are therefore integral parts of management.

Davidson, Charles S.: *Medical Management of Cirrhosis of the Liver, J. Chron. Dis.* 2:55-69 (July) 1955.



Blood Transfusion—Complications

Except as an emergency measure, transfusion is justified only when the possible benefits are greater and the hazards no more than those expected from an alternative procedure.

The transmission of some antigens foreign to a recipient is quite pos-

sible because of the large number of blood group antigens and possible combinations. The most significant antigens are of the ABO and Rh systems. Anti-A and anti-B isoantibodies occur normally in the plasma when the corresponding antigens are not in the erythrocytes. On the other hand, anti-Rh antibodies are found in Rh-negative persons only after immunization by Rh-positive blood or pregnancy. The effect of Rh isoimmunization may not be apparent until the delivery of an erythroblastic infant.

Usually the most severe hemolytic transfusion reactions result from incompatibility involving the ABO system. Error in identification is the usual cause of administration of blood of an incompatible ABO group.

A hemolytic transfusion reaction is a measurable increase in the rate of destruction of red cells of donor or recipient. The reaction may be demonstrable only by failure to maintain the expected rise in hemoglobin or hemocrit after transfusion. The manifestations are extremely variable and may be chills, fever, chest pressure or tightness, lumbar pain, hypotension, and in surgical patients, vascular oozing may occur.

The cause of the transfusion reaction should be determined when possible. Besides incompatibility, inadequately refrigerated, frozen, or outdated blood may cause hemolytic reactions. Hemolytic reactions usually present three phases: initial hemolytic crisis, oliguric period, and diuresis or recovery period. During the first phase, hypotension may be severe or prolonged and necessitate transfusion of whole blood. A reaction to incompatible blood does not preclude transfusion with compatible blood. Fluid and electrolyte treatment should be administered with restraint during the initial period to avoid overload when renal shutdown is possible.

Manifestations of transfusion with contaminated blood include headache, chest pain, nausea and vomiting, and suffusion of the skin. Severe chills and fever ensue and blood pressure may decline to shock levels while the skin is still flushed and warm. As little as 25 cubic centimeters of

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1. Mellars, N. W., and Herms, F. W.: J. California Dent. A. & Nevada Dent. Soc., 34:479, 1958.

2. Gruber, C. M., Jr.: J. A. M. A., 164:966, 1957.

3. Settel, E.: J. Am. Geriatrics Soc., 6:818, 1958.

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(See pages 328 and 329)

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contaminated blood may be fatal.

Blood donors who are symptom free may be chronic carriers of the virus that causes homologous serum hepatitis. Since no practical way of treating all donor samples is available, prompt identification of the responsible donor is mandatory.

Miller, Gerald: *Complications of Blood Transfusions*, Gen. Practitioner 13:99-105 (July) 1956.



Neoplasms of the Hand

Tumors of the hand may be a manifestation of a generalized disorder such as gout or of a disturbance in fat metabolism. Trauma is a frequent cause, especially of precancerous and cancerous growths. Premalignant neoplasms occur when the skin is irritated by roentgen or sun rays, or chemicals. Malignant lesions may be caused by chronic infections, burn scars, or arsenicals.

The dissection of a tumor may be done in a bloodless field with a blood-pressure cuff used as a pneumatic tourniquet. Small digital nerves and vessels adherent to the tumor are protected. Tendon, nerve, or skin grafting may be necessary.

Squamous cell carcinoma is most often located on the dorsum of the hand and may spread to muscles, tendons, and bone. The tumor and surrounding tissue should be excised and a skin graft considered. All palpable regional nodes are removed two weeks later, and prophylactic dissection may be performed six weeks later.

Carcinoma of the nail, a squamous cell type of neoplasm, originates from chronic infection. Amputation of the involved digit with secondary dissection of the epitrochlear and axillary nodes is necessary.

Most patients with roentgen-ray dermatitis, a premalignant growth, are physicians, dentists, or other persons exposed to large doses of roentgen rays. The entire area is excised and replaced with full-thickness skin graft.

Moles that increase in size or are
(Continued on page 337)

subject to irritation should be widely removed. Cautery, electrodesiccation, or irradiation must not be used. Half of malignant melanomas originate in traumatized areas, frequently from benign subungual moles. The digit should be removed and the regional lymph nodes excised. Keratosis, noted in elderly patients exposed to weather, should be observed for signs of malignant changes.

Of the connective tissue changes, ganglia are the most common tumors of the hand and in about one-third of instances they are attributed to trauma. These tumors, arising from the tendon sheath, are generally on the dorsum of the wrist. Hard, irregular, fixed masses occurring on either surface of the hand are giant-cell tumors, one of the most common benign growths. The lesion is encapsulated but capable of eroding bone. Total removal prevents recurrence.

Posch, Joseph L.: *Tumors of the Hand, J. Bone & Joint Surg.* 38A:517-540 (May) 1956.



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That Tired Feeling

I AM INDEBTED to that estimable British medical journal, *The Lancet*, for debunking the syndrome of "metabolic insufficiency or hypometabolism."

Many of the sufferers from chronic tiredness, utter fatigue, weakness, and nervousness have been filled with thyroid extract in the false belief that chronic weariness is somehow tied up with hypothyroidism. *The Lancet* says that the thyroid hormone is no more helpful to improve the tired feeling than is a sugar pill. The conclusion is made that most sufferers from "nervous exhaustion" are experiencing some kind of upset of the nervous system. To put it bluntly, a neurosis. Something is gnawing inside their psyche that is making their soma tired.

Every dentist sees and hears adult patients who complain of devastating fatigue that is not correlated with expenditure of energy from work. These people do not carry their lament to dentists with the thought that there is some form of dental treatment that would help them. The dentist represents a captive listener to whom people direct the recitation of all manner of woes. Often the dentist who listens all day to these torrents of sad, sob stories is more tired himself at evening than are the people who have been pouring forth their complaints. When people ventilate their thoughts and feelings by an outpouring they may help themselves but inundate the helpless listener.

Some time or other we have all experienced profound fatigue that was unrelated to physical exertion. A day spent in frustration at the dental chair hearing roots fracture, making inlays that do not fit, watching den-

(Continued on page 338)

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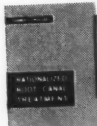


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tures drop or float is more exhausting than a day when we work twice as hard and all things go well. This could mean that frustration, which is an emotional trauma, is harder on the energy reserve than is vigorous exertion and rugged physical work.

A day spent doing what one likes—fishing, golfing, traveling—brings a tired feeling but not nervous fatigue. Muscles are intended to function and when they do the products of muscle metabolism seem to be euphoric. When "hurry, worry, or indecision" occupy the mind and muscles the metabolic product is a "depressant."

If these observations are true, and they certainly are from my own experience, there is probably one remedy for that tired feeling—moderate exercise. It may seem incongruous to suggest that tiredness can be relieved by mild exertion. That, however, seems to be a better remedy than filling up with the "pep" pills or thyroid extract, provided there is no underlying organic disease that contributes to the tired feeling.

The Chairside Manner

Every dentist wonders what makes for success in dental practice. We all know superb technicians who suffer from lack of patronage. We also know other dentists who are technically and grossly incompetent who enjoy a thriving and overflowing practice. The same phenomena prevail in other departments of human affairs: success does not always come to the competent or failure to the ungifted. Almost every place we look we see people in places of eminence who reached that plateau by means other than sheer ability. There are others trapped in positions that are beneath their skills and talents.

This formless and shadowy possession called personality cannot be defined. Some people seem to be born with a persona that makes them acceptable to their peers, others came into the world lacking the gift of charm. Some of the most attractive and personable people are "con" men (and women). We all know people who are devoid of character, who lie for the joy of lying, who are untrustworthy—but are likeable and popular. We also know others who are illuminated with probity and dependability who are completely obnoxious to most other human beings.

The personality of the dentist—to attract or to repel—determines in a rather large way how well he will do in the interpersonal relationship of practice. The personality of the dentist as expressed in his "chairside manner" is a considerable factor in his acceptance or rejection by patients.

The president of one of the branches of the British Dental Association (Henry Mandiwall) has described

this unique form of personality expression:

"I venture to suggest that a good chairside manner in the dentist is equally important for the welfare of his patients and, perhaps, more difficult to attain than is the bedside manner of the physician. The physician has his patient; the dentist, in addition, a complicated surgical equipment, which, however well he be served by his chairside assistant, must in the nature of things frequently divert his attention from the patient as he sits ill at ease in the dental chair and in such close proximity to the many gadgets which appear so alarming to him. It is by the exercise of a good chairside manner that the dentist is able to assuage his fears and gain his confidence. When you attend a patient it is essential for him to put his trust in you; to believe in you. You must make him realize that you really do sympathize with him in his distress, and will do your best to help him. In return, in nine cases out of ten, he will give you that close cooperation without which no first-class work, however skilled the operator, can be successful.

"The chairside manner represents, in fact, little more than the expression of natural good manners towards an individual, perhaps nervous and timid, who has done us the compliment of placing himself unreservedly in our hands. First impressions are important, and I need not dwell on the necessity for personal and surgical cleanliness, of a reassuring and optimistic attitude, and a polite attention to questions which, how ever much they test our patience, ease the patient of his tensions and demonstrate the all-important fact that we are out to do our best for him. When our patient appreciates that our prime function is to relieve suffering and to help him to combat the ravages of oral disease and the systemic diseases for which they are so often directly responsible, he will realize that we are honest and respectable men and will respect us accordingly. A good chairside manner cannot be turned on and off like a tap, but springs eternally in the hearts of men who exhibit their

(Continued on page 343)

own natural decent selves to all with whom they come in contact."

The word *rapport* expresses the feeling, the emotion, of mutual understanding. It means that two people feel drawn and attracted to each other. What is rapport? So far as I know, it is amorphous. For want of a better explanation it may be some chemical or electro force—positive or negative ionic exchange, radiations. Whatever personality is in its nature it is an experience of unknown forces. It cannot be defined except in the abstract terms of good or bad.

Without venturing too far over my head into the murkiness of political debate I cite this case. A man of proved ability and of wide and varied experience is a candidate for the highest office in the nation. Despite his skills and preparation for the job this man seems to have something about him that does not attract people. For eight years he has trained and disciplined himself for the job. In the parlance of the personnel managers he "is ready for promotion." Certainly if anyone examines his dossier dispassionately his record is superior to any of his opponent's. But people do not look at other people without emotional overtones!

When many people speak of this man they say "I do not like him." When pressed for a reason they can give none. They fall back on the clichés of disapproval: "he is cold," "he is calculating," "he cannot be trusted." Few of these detractors have ever seen the man in person. Fewer still have met him. Not one out of 10,000 has had any kind of direct dealing with him. Nonetheless the image prevails that here is a man that is not attractive to people. It will take more than the usual techniques of Madison Avenue to create a *rapport* on a nation-wide scale sufficient to elect this highly qualified man. If he were a dentist, despite his ability, he would not have the "chairside manner" and probably would not have a wide acceptance among patients.

Is it fair to make such judgments on lack of sufficient evidence? It is not just! But most of us do so every day. We may have the skill to judge objectively things that we can record

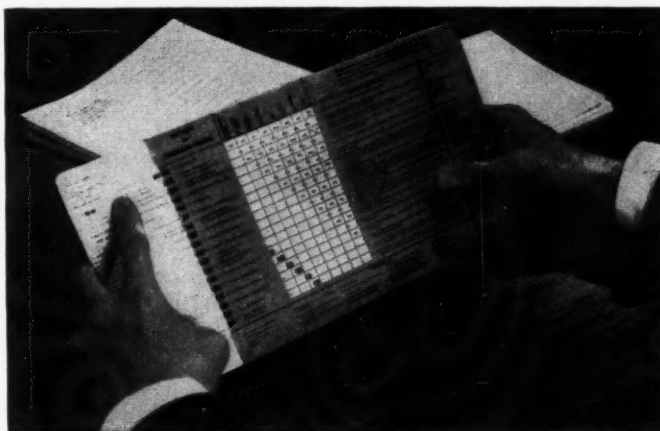
with our senses: things that we can weigh and measure. Subjective experience is different. Feelings are emotions and defy measurement. Our emotions are older, by thousands of years, than are our powers of reasoning. Rational thought is one of the later gifts to man. Our *feeling tones* are both deeper and closer to the surface than are our *thinking*

skills. Our acceptance or rejection of another personality is more often than not an emotional act than a logarithm of logic.

If you are born with the "chairside manner" and a gift of *rapport* you are fortunate. Others may not have it, may never have it. Should they keep trying to develop it? By all means!

—E.J.R.

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